THOMAS J. DANIELSON

Maine Department of Environmental Protection
Biological Monitoring Unit
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EDUCATION

Doctor of Philosophy, Ecology and Environmental Sciences, May 2010
University of Maine, Orono, ME
Assessing the biological condition of Maine streams and rivers using benthic algal communities. (Research adviser: Dr. Cynthia S. Loftin)
North American Benthological Society general scholarship award, 2010.
Horace Bond Award for excellence in graduate research in aquatic and fisheries ecology.

Master of Environmental Management, Water Resources Management, May 1996
Nicholas School of the Environment, Duke University, Durham NC
Local wetlands protection and alternatives for municipalities in North Carolina.
Master of Public Policy, May 1996
Sanford School of Public Policy, Duke University, Durham NC
Indicator communities for biomonitoring inland, freshwater wetlands.

Bachelor of Science, Wildlife & Fisheries Biology**,** May 1993
Bachelor of Business Administration, Finance and Operations Management, May 1993
University of Massachusetts, Amherst, MA
Magna cum laude, Outstanding Wildlife Senior, Commonwealth Scholar & Interdisciplinary Honors, Beta Gamma Sigma & Golden Key honor societies

Field Biology Training Program, Spring 1992
Manomet Center for Conservation Sciences, Manomet, MA and Belize, C.A.
Field and analytical methods for studying birds, small mammals, and vegetation.
Competitive interaction of Woodcreepers (Dendrocolaptidae) following army ant swarms.

PROFESSIONAL EXPERIENCE

Biologist II, Maine Department of Environmental Protection, Augusta, ME. 2008-present
Biologist I, 2000-2008
Evaluate the condition of streams, rivers, and wetlands using algae and aquatic macroinvertebrates. Manage and analyze biological, chemical, physical, and spatial data. Develop statistical models to evaluate health and improve management of aquatic systems. Analyze data, write rules, and coordinate rulemaking process to add biological and nutrient criteria into water quality standards. Help develop restoration plans. Apply for and manage grants to fund research. Review permits. Participate in regional and national committees and workgroups for bioassessments, nutrient criteria, climate change, and wetland ecology.

Ecologist (GS 13), Wetlands Division, U. S. Environmental Protection Agency, Washington, DC. 1998-2000. *Environmental Protection Specialist (GS 9-12), Presidential Management Fellowship* 1996-1998
Coordinated the Biological Assessment of Wetlands Workgroup (BAWWG), which was a national workgroup of researchers from states, federal agencies, and universities. Integrated technical expertise and policy making. Provided technical and policy assistance to states about

biological monitoring, wetland ecology and policy, and water quality standards. Awarded and managed grants for wetland research. Reviewed applications for federal research grants. EPA representative for Partners in Flight and interagency workgroups on spatial data.
Two bronze medals for commendable service. 2000 EPA Unsung Heroes Award.

Instructor, U. S. Department of Agriculture Graduate School, Washington, DC.
Planned and taught Estuarine Ecosystems (3 cr.) course. Spring 1998 and spring 1999
Planned and taught Wetlands Ecosystems (3 cr.) course. Summer 1999

Ecologist (Detail from EPA), Patuxent Wildlife Research Center, Laurel, MD. Summer 1998
Co-developed an index of biological integrity for stream fish of northern Virginia.
Conducted wetland bioassessments using plants, amphibians, and macroinvertebrates.

National Network for Environmental Management Studies (NNEMS) Fellow
Wetlands Division, U. S. EPA, Washington, DC. Summer 1995
Assisted states with improving wetland monitoring programs and water quality standards.

Field Assistant, Dartmouth College, Hanover, NH. Summer 1992
Identified birds by sight and sound for a study of breeding, Neotropical songbirds.
Located nests, banded birds, and conducted vegetation surveys.

Field Assistant, University of Massachusetts, Amherst, MA. Summer 1991
Investigated biological controls of gypsy moths. Small mammal trap and recapture.

PUBLICATIONS

Danielson, T. J., C. Loftin, and F. Drummond. **Comparison of benthic diatom models for estimating nutrient concentrations in Maine streams and rivers** (Submitted to Freshwater Science in 2012, in review)

Danielson, T. J., C. Loftin, L. Tsomides, J. DiFranco, B. Connors, F. Drummond, and D. Courtemanch. 2012. **A benthic algal community model for predicting the attainment of biological criteria for Maine streams and rivers**. Freshwater Science 31(2):318-340.

Danielson, T. J., C. Loftin, L. Tsomides, J. DiFranco, and B. Connors. 2011. **Algal bioassessment metrics for wadeable streams and rivers of Maine, USA.** Journal of the North American Benthological Society 30(4):1033-1048.

Danielson, T. J. 2010. **Assessing the Biological Condition of Maine Streams and Rivers Using Benthic Algal Communities.** Doctoral Thesis, Ecology and Environmental Sciences, University of Maine, Orono, ME.

Danielson, T. J. 2009. **Description of Nutrient Criteria for Fresh Surface Waters (Chapter 583)** (DEPLW0974). Maine Department of Environmental Protection, Augusta, ME.

Danielson, T. J. 2009. **Protocols for Calculating the Diatom Total Phosphorus Index (DTPI) and Diatom Total Nitrogen Index (DTNI) for Wadeable Streams and Rivers** (DEPLW-0970A). Maine Department of Environmental Protection, Augusta, ME.

Danielson, T. J. 2006a. **Protocols for Sampling Algae in Wadeable Streams, Rivers, and Freshwater Wetlands** (DEPLW0634). Maine Department of Environmental Protection, Augusta, ME.

Danielson, T. J. 2006b. **Protocols for Measuring Continuous Water Temperature Using an Onset Data Logger** (DEPLW0700). Maine Department of Environmental Protection, Augusta, ME.

Danielson, T. J. 2004. **Protocols for Collecting Water Grab Samples in Rivers, Streams, and Freshwater Wetlands** (DEPLW0637). Maine Department of Environmental Protection, Augusta, ME.

U. S. EPA*. 2003. **Methods for Evaluating Wetland Condition: Wetland Bioassessment Case Studies**. EPA822-R-03-013. U. S. Environmental Protection Agency, Office of Water, Washington, D.C. * I was the primary editor.

U. S. EPA*. 2001. **Methods for Evaluating Wetland Condition: Introduction to Wetland Biological Assessment**. EPA822-R-01-007a. U. S. Environmental Protection Agency, Office of Water, Washington, D.C. * I was the primary author.

Adamus, P., T. J. Danielson, and A. Gonyaw. 2001. **Indicators for Monitoring the Biological Integrity of Inland Freshwater Wetlands: A Survey of North American Technical Literature** *(1990-2000).* EPA843-R-01-2001. U. S. EPA, Office of Water, Washington, D.C.

Teels, B., and T. J. Danielson. 2001. **Using a Regional Index of Biotic Integrity (IBI) to Characterize the Condition of Northern Virginia Streams, with Emphasis on the Occoquan Watershed: A Case Study**. Technical Note 190-13-1. USDA, Natural Resources Conservation Service, Washington, D.C.

Danielson, T. J. 1998. **Wetland Bioassessment Fact Sheets.** EPA843-F-98-001. U. S. Environmental Protection Agency, Office of Water, Washington, D.C.

TEACHING EXPERIENCE

Maine Department of Environmental Protection, Augusta, ME. 2000 – Present. Gave a variety of training workshops on biological assessments, nutrient criteria, statistics, and sampling protocols. Supervised and trained conservation aides, AmeriCorps volunteers, and interns. Organized field experiences and taught sampling protocols to DEP staff and partners from academia, tribes, state and federal agencies, municipalities, businesses, and environmental organizations. Gave workshops on vernal pool ecology and biological assessments to the Board of Environmental Protection. Involved elementary school children in hands-on activities related to aquatic macroinvertebrates, amphibians, vernal pools, and wetlands.

U.S. Department of Agriculture Graduate School, Washington, D.C. 1998 – 1999. Developed and taught courses in **Estuarine Ecosystems** (3 cr., twice) and **Wetland Ecosystems** (3 cr.).

U.S. Environmental Protection Agency, Washington, D.C. 1996 – 2000. Organized and led many national and regional workshops, conferences, and field experiences about biological assessments and water quality standards. Led field trips to wetlands for inner-city schools. Led a team of volunteer stream monitors for the Audubon Naturalists Society.

RECENT PRESENTATIONS

Danielson, T.J. and D. Courtemanch. **Maine's approach to integrate causal and response indicators of eutrophication**. North Carolina Forum on Nutrient Over-Enrichment, May 29-30, 2012.

Danielson, T.J., D. Suitor, L. Tsomides, and J. Balukas. **Impervious cover thresholds for stream macroinvertebrates.** New England Association of Environmental Biologists, March 21-23, 2012.

Danielson, T.J., D. Suitor, L. Tsomides, and J. Balukas. **Impervious cover thresholds for Maine stream macroinvertebrates.** Maine Water Conference, March 14, 2012.

Danielson, T. J., C. Loftin, and F. Drummond. **Comparison of benthic diatom models for estimating nutrient concentrations in Maine streams and rivers.** North American Benthological Society, Providence, RI, May 26, 2011.

Danielson T. J., L. Tsomides, and D. Suitor. **Impervious surface and temperature thresholds for stream biota**. New England Association of Environmental Biologists, Sturbridge, MA. March 16-18, 2011.

Danielson, T. J. and D. Courtemanch. **Establishing flow standards incorporating a natural flow regime and aquatic life criteria**. New England Association of Environmental Biologists, Sturbridge, MA. March 16-18, 2011.

Danielson T. J., L. Tsomides, and D. Suitor. **Impervious surface and temperature thresholds for stream biota**. Maine Water Conference, Augusta, ME. March 16, 2011.

Danielson, T.J. Led nutrient criteria stakeholder meeting and gave a presentation on current rule. Augusta, ME. November 1, 2010.

Danielson, T. J., C. Loftin, L. Tsomides, J. DiFranco, and B. Connors. **A stream algal bioassessment incorporating the Biological Condition Gradient to evaluate tiered aquatic life uses in Maine**. Joint meeting of ASLO/NABS, Santa Fe, NM. June 7-11, 2010.

Danielson, T. J., and C. Loftin. **Assessing the biological condition of Maine streams and rivers using benthic algae**. Maine Cooperative Fish and Wildlife Research Unit, Orono, ME. May 11, 2010. (Invited)

Danielson, T. J. **A stream algal bioassessment incorporating the Biological Condition Gradient to evaluate tiered aquatic life uses in Maine**. Seventh National Monitoring Conference, National Water Quality Monitoring Council, Denver, CO. April 25-29, 2010. (Invited)

Danielson, T. J. **Maine's proposed nutrient criteria for fresh surface waters**. Seventh National Monitoring Conference, National Water Quality Monitoring Council, Denver, CO. April 25-29, 2010. (Invited)

Danielson, T. J. **Evaluating the biological condition of Maine streams and rivers using benthic algae**. New England Association of Environmental Biologists, Newport, RI. March 18-19, 2010.

Danielson, T. J., L. Tsomides, J. DiFranco, B. Connors, and C. Loftin. **Stream algal model for predicting attainment of Maine biological criteria**. Maine Water Conference, Augusta, ME. March 17, 2010.

Danielson, T. J. **Monitoring biological condition of Maine's streams, rivers, and wetlands**. Salmon Commission, Augusta, ME. January 22, 2010. (Invited)

Danielson, T. J. **Nutrient indicators for determining attainment of water quality standards**. Maine Rural Water Association, Freeport, ME, December 9, 2009. (Invited)

Danielson, T. J. Tiered Aquatic Life Use (TALU) Managers pilot project (workshop participant). U.S. Environmental Protection Agency webinar. Chelmsford, MA. October 7, 2009. (Invited)

Danielson, T. J. Led nutrient criteria stakeholder meetings. Augusta, ME. October 1 and 13, 2009.

Danielson, T. J. **Applications of BCG and TALU in Maine**. New England Water Pollution Control Commission Augusta, ME. September 22, 2009. (Invited)

Danielson, T. J. **Chapter 583: Nutrient criteria for fresh surface waters**. Maine Wastewater Control Association annual meeting, Bethel, ME. September 17, 2009. (Invited)

Danielson, T. J. Chapter 583 opening statement with Board of Environmental Protection. Augusta, ME. June 18, 2009

Danielson, T. J. Chapter 583 posting presentation with Board of Environmental Protection. Augusta, ME. May 7, 2009.

IDENTIFICATION SKILLS

Amphibians (sight and calls), aquatic vascular plants, birds (sight and songs), dragonflies, freshwater algae, freshwater fish, freshwater macroinvertebrates, mammals, marine intertidal organisms, marine macroalgae, plants, and trees.